REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-16 are active in the application subsequent to entry of this amendment. A typographical error has been noted on page 8, line 21 and corrected.

The claims have been amended in order to more particularly point out and distinctly claim that which applicants regard as their invention and to feature subject matter described in the original specification. More specifically, claims 1 and 7, the only independent claims, have been amended to reflect the fact that the front surface layer and rear surface layers become porous and allow the passage of air between them when these layers have been cured after heating in an autoclave. The use of an autoclave is discussed in applicants' specification at page 8, line 21 and it will be recognized as is commonly known in this art, autoclaves involve the use of heat and pressure; see *Hawley's Condensed Chemical Dictionary*, Thirteenth Edition, page 101 "autoclave...which is used to effect chemical reactions requiring *high temperature and pressure*." (emphasis added). Accordingly, claims 1 and 7 have been made more precise.

In addition, new claims 13-16 have been added dependent from claims 1 or 7, as indicated. Claim 13 is directed to a honeycomb panel in which the front surface layer and rear surface layers are made of a plurality of layers. This arrangement is described in applicants' specification at page 8, lines 10-13 as well as the test results using two-ply and five-ply layers in Figures 7A, 7B, 8A and 8B. Similarly, new claim 14, directed to a honeycomb sandwich panel in which the front surface layer and rear surface layer become porous and allow passage of air in a thickness direction when it is cured after heating, is based upon the description of the air permeability test at page 11, lines 8-27 and the results of same reported at page 12, line 19 to page 13, line 24 with reference to FIGS. 5, 7A, 7B, 8A and 8B. New claims 15 and 16 correspond to claims 13 and 14 but depend from independent claim 7.

These new claims serve to further define the invention and also distinguish it from the prior art. Basis for these claims will be apparent from the above discussion, hence claims 13-16 do not present new subject matter.

The current Official Action cites and applies prior art documents not previously considered and applicants take this opportunity to address these rejections as well as to present additional claims. More specifically, claims 1, 2, 4, 6-8, 10 and 12 stand rejected as allegedly being anticipated by the Saugnac et al reference while remaining claims 3, 5, 9 and 11 stand rejected as being unpatentable/obvious over the disclosures of this new reference taken in light of two supplementary documents, also U.S. patents. These rejections are traversed as the claims now under review are neither anticipated by nor rendered obvious over the disclosures of the newly applied references, whether considered singly or in combination.

The references cited by the examiner describe hardening heat treatment under conditions of pressure lower than atmospheric pressure. This is logical because the references aim at forming a porous front or rear layers for the purpose of weight reduction. On the other hand, according to the present invention as clearly described and illustrated in the specification and drawings, applicants' honeycomb sandwich panel has porous and air permeable front and rear layers formed in an autoclave through a hardening heat treatment under conditions of pressure higher than atmospheric pressure. None of the references discloses that porous and air-permeable front and rear layers can be formed using an autoclave.

U. S. patent No. 6,267,838 (Saugnac et al) newly cited by the examiner specifies that the second skin 16 is very thin 9/100 mm (see column 4, lines 37-48). The thickness of this layer should be taken notice of; *see* the attached monograph "AMS-C-9084" of AMS (Aerospace material specification) established by SAE (Society of Automotive Engineers). According to the characteristics of the second skin 16 described in the reference, the underlined portion of the table corresponds to the thickness of the second layer 16. Since the smallest value of the thickness indicated in the table is 0.0030-0.0050

inch, if a plurality of layers are overlaid, the total thickness will be 14/100 mm or more. Thus, it is clear that the second layer 16 of Saugnac et al is a single layer.

On the other hand, each of the front layer and the rear layers of the honeycomb sandwich panel of the present invention has air permeability even when these layers are made of a plurality of layers. This is demonstrated from the results of tests using two-ply and five-ply layers (see the data provided in FIGS. 7A, 7B, 8A and 8B). The present invention is clearly different from the reference in this respect, hence claims 1, 2, 4-6, 6-8 and 10 are novel and not anticipated by the applied reference.

The Saugnac reference also provides a first skin 12 which has micropores for the purpose of weight reduction. However, the reference does not explicitly describe whether the first skin 12 is air-permeable. Based on the description in column 4, lines 62-66, the second skin 16 is considered air-permeable. While the second skin 16 is described as air-permeable, there is no similar description regarding the first skin 12. Therefore, it is clear that air permeability of the first skin 12 is not taken into account and appears to be of no consequence to Saugnac.

The honeycomb sandwich panels defined in new claims 13 and 15 are clearly distinguishable from the reference; the claims recite that each of the front and rear layers is made of a plurality of layers. Further, as clear from the test results in the latter half of the description of this embodiment, the honeycomb sandwich panel of the present invention clearly has air permeability in the thickness direction of the panel. That is, both the front and rear surfaces are air-permeable as specifically featured in new claims 14 and 16.

For the above reasons it is respectfully submitted that the claims of this application define inventive subject matter. Reconsideration and allowance are solicited. Should the examiner require any further information please contact the undersigned by telephone.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____

Arthur R. Crawford
Reg. No. 25,327

ARC:pfc
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

Hawley's

Condensed Chemical

Dictionary

THIRTEENTH EDITION

Revised by

Richard J. Lewis, Sr.

JOHN WILEY & SONS, INC.
New York • Chichester • Weinheim • Brisbane • Singapore • Toronto

Derivation: By extraction from *Datura stramonium* or by synthesis.
Grade: Technical, NF.
Use: Medicine (antidote for cholinesterase-inhibiting compounds, organophosphorus insecticides, nerve gases); artificial respiration may also be necessary.

attapulgite. $(MgAl)_5Si_8O_{22}(OH)_4 \cdot 4H_2O$. A hydrated aluminum-magnesium silicate, the chief ingredient of Fuller's earth.
Use: Drilling fluids, decolorizing oils, filter medium.
See clay.

attar. (otto). An essential oil (fragrance) made by steam distillation of flowers, especially roses.
See essential oil; perfume.

atto-. (a). Prefix meaning 10^{-18} unit (abbreviated a), e.g., 1 ag = 1 attogram (10^{-18} g).

attrition mill. (burr mill). A grinding machine consisting of two metal plates or discs with small projections (burrs). One plate may be stationary while the other rotates, or both may rotate in opposite directions. Feed enters through a hopper above the plates, and ground product emerges at the bottom. There are numerous variations in design.

Au. Symbol for gold, from Latin *aurum*.

auger. See screw.

Auger electron. Low-energy conversion electron produced by absorption of X-ray quanta by an electron of an outer shell.
See AES; spectroscopy.

auramine. [4,4′-(imidocarbonyl)bis(*N*,*N*-dimethylaniline)].
CAS: 492-80-8.
$(CH_3)_2NC_6H_4(C{:}NH)C_6H_4N(CH_3)_2 \cdot HCl$.
Properties: Yellow flakes or powder. Soluble in water, alcohol, and ether.
Use: Yellow dye for paper, textiles, leather; antiseptic; fungicide.

aureolin. See Indian yellow.

"Aureomycin" *[Cytec]*. TM for chlortetracycline hydrochloride. An antibiotic. Must conform to FDA requirements.

"Auric" *[Du Pont]*. TM for a ferric oxide brown pigment.

auric compounds. See gold compounds.

aurin (*p*-rosolic acid). $(C_6H_4OH)_2CC_6H_4O$. A triphenylmethane derivative.
Properties: Reddish-brown pieces with greenish metallic luster; easily powdered. Insoluble in water, benzene, and ether; soluble in alcohol.
Use: Indicator, dye intermediate.

aurous compounds. See gold compounds.

austenite. A component of steel, a nonmagnetic solid solution of carbon or ferric carbide in γ-iron. Very unstable below its critical temperature, but may be obtained in high-carbon steels by rapid quenching from high temperatures. Addition of manganese and nickel lowers critical transition temperature, and stable austenite may be obtained at room temperature. Characterized by a face-centered cubic lattice.

austenitic alloys. (austenitic steels). Alloys of iron, chromium, and nickel noted for their resistance to corrosion.

Australian bark. See wattle bark.

autocatalysis. A catalytic reaction induced by a product of the same reaction. This occurs in some types of thermal decomposition, in autoxidation, and in many biochemical systems, as when an enzyme activates its own precursor.
See autoxidation.

autoclave. A chamber, usually of cylindrical shape, provided with a door or gate at one end that can be securely closed during operation. It is built heavily enough to accommodate steam pressures of considerable magnitude. It is used to effect chemical reactions requiring high temperature and pressure, such as open-steam vulcanization of rubber. Sizes vary from laboratory units to production size, which may be over 50 ft long and three or more feet in diameter. The latter are provided with baffles to ensure equal distribution of the entering steam. Autoclaves are also used in certain sterilization processes.

"Autofloc" *[Nalco]*. TM for computerized apparatus in mining.
Use: For monitoring and control of clarification/thickening operations.

autohesion. The formation of a bond between two contiguous surfaces of the same material, when they are pressed together.

autoignition point. (autoignition temperature; autoign temp). The minimum temperature required to initiate or cause self-sustained combustion in any substance in the absence of a spark or flame. This varies with the test method. Some approximate autoignition temperatures follow:

acetone	537C (1000F)
amyl acetate	398C (750F)

TABLE 1 - Construction and Physical Properties of Finished Cloth

(Yarns per in) (mm) (g/m²)

23 22 0.09 0.14 107

Type	Commercial Designation 1/	Weave	Yarns per inch (min)		Yarn Construction 2/ 3/		Thickness (inch)		Weight (oz/sq yd)		
			Warp	Filling	Warp	Filling	Min	Max	Min	Nom 1/	Max
I	112	Plain	39	38	450-1/2 ECD	450-1/2 ECD	0.0030	0.0050	1.94	2.06	2.18
I A	112-150	Plain	39	38	450-1/2 ECD	150-1/0 ECG	0.0030	0.0060	2.44	2.60	2.76
II	116	Plain	50	47	450-1/2 ECD	450-1/2 ECD	0.0035	0.0055	2.89	3.07	3.25
II A	116-150	Plain	50	51	450-1/2 ECD	150-1/0 ECG	0.0035	0.0055	3.40	3.62	3.84
III	120	4-counter (crowfoot) satin	50	47	450-1/2 ECD	450-1/2 ECD	0.0035	0.0055	2.80	3.07	3.25
IV	128	Plain	41	31	225-1/3 ECE	225-1/3 ECE	0.0065	0.0085	5.42	5.77	6.12
IV A	128-150	Plain	41	31	150-1/2 ECG	150-1/2 ECG	0.0065	0.0085	5.42	5.77	6.12
IV B	128-75G	Plain	41	31	75-1/0 ECG	75-1/0 ECG	0.0060	0.0085	5.42	5.77	6.12
V	143	4-harness (crowfoot) satin	48	29	225-3/2 ECE	450-1/2 ECD	0.0080	0.0120	8.08	8.60	9.12
V A	143-150	4-harness (crowfoot) satin	48	29	150-2/2 ECG	450-1/2 ECD	0.0080	0.0120	8.08	8.60	9.12
VI	182	Plain	27	15	225-2/5 ECE	225-2/5 ECE	0.0140	0.0190	10.80	11.50	12.30
VII	764	Plain	19	17	225-4/3 ECE	225-4/3 ECE	0.0140	0.0180	11.37	12.10	12.83
VII A	164-150	Plain	19	17	150-4/2 ECG	150-4/2 ECG	0.0150	0.0190	11.37	12.10	12.83
VIII A	181-150	5-counter, 8-harness satin	55	53	150-1/2 ECG	150-1/2 ECG	0.0080	0.0120	8.13	8.65	9.17
VIII B	181-75DE	5-counter, 8-harness satin	55	53	75-1/0 ECDE	75-1/0 ECDE	0.0080	0.0120	8.13	8.65	9.17
IX	182	5-counter, 8-harness satin	69	65	225-2/2 ECE	225-2/2 ECE	0.0120	0.0160	11.81	12.10	12.83
IX A	182-150	5-counter, 8-harness satin	69	65	150-1/3 ECG	150-1/3 ECG	0.0120	0.0150	12.96	13.60	14.42
X	183	5-counter, 8-harness satin	58	47	225-3/2 ECE	225-3/2 ECE	0.0170	0.0210	15.13	16.10	17.07
XI	184	5-counter, 8-harness satin	41	35	225-4/3 ECE	225-4/3 ECE	0.0240	0.0330	22.84	24.30	25.76
XI A	184-150	5-counter, 8-harness satin	41	35	150-4/2 ECG	150-4/2 ECG	0.0240	0.0330	22.84	24.30	25.76
XII	1000-120	Plain	15	13	150-4/2 ECG	150-4/2 ECG	0.0120	0.0160	8.02	8.50	8.98
XII A	1000-75	Plain	15	13	75-2/2 ECK	75-2/2 ECK	0.0120	0.0160	8.07	8.60	9.13
XIII	1048-120	Plain	13	13	150-4/4 ECG	150-4/4 ECG	0.0200	0.0250	16.73	17.90	18.47
XIII A	1048-75	Plain	13	13	75-2/4 ECK	75-2/4 ECK	0.0200	0.0250	15.72	17.80	18.38

NOTES: 1/ Commercial designations and nominal weights per square yard are shown for information only and are not requirements. Commercial designations for a given type may vary with different suppliers.

2/ Terminology for yarn construction is in accordance with MIL-Y-1140 but the requirements of MIL-Y-1140 for yarn breaking strengths are not applicable. NOTE: The nominal average diameter of DE filaments (not listed in MIL-Y-1140) is 0.00025 inch.

3/ Yarns conforming to specified construction except for smaller-than-specified filament diameter are acceptable (e.g., 75-1/0 ECDE yarns are acceptable for Type IV fi cloth in lieu of 75-1/0 ECG yarns).